

15 May 2005

## CRUISE RESULTS

NOAA FRV ALBATROSS IV  
Cruise No. AL IV 04-06  
(Parts I-II)  
Sea Scallop Survey

### CRUISE PERIOD AND AREA

The cruise period was 6 July - 5 August 2004 and was divided into two parts. Part I was from 6 - 22 July; Part II, 26 July - 5 August. The area surveyed was from North Carolina to Georges Bank. Sampling depths ranged from 28 to 110 meters (15 to 60 fathoms). Approximate station locations are shown in Figures 1 and 2.

### OBJECTIVES

The objectives of the survey were to: (1) determine the distribution and relative abundance of the sea scallop, *Placopecten magellanicus* and Iceland scallop, *Chlamys islandica*; (2) collect biological samples and data relative to assessment needs; (3) monitor hydrographic and meteorological conditions; (4) make biological collections for interested scientists at various institution and laboratories; (5) determine bottom contact of the research scallop dredge using a deployable inclinometer sensor; (6) validate the inclinometer with the use of an underwater camera system; (7) quantify the selectivity and catchability of the scallop dredge with and without rock chains.

### METHODS

Operations and gear for cruise AL IV 04-06, Parts I and II conformed with the Cruise Instructions for the Sea Scallop Survey, dated 18 May 2004 with the following exceptions: Part I returned 11 hours earlier on 21 July due to successful completion of planned operations; Part II also returned one day earlier than originally scheduled on 5 August due to successful completion of planned operations.

Pre-selected random stations were sampled using a standard 2.44 meter (8') wide New Bedford

type scallop dredge rigged with 5.1 cm (2 inch) diameter rings and lined with at 3.8 cm (1½ inch) polyethylene stretched mesh liner. Tow duration was 15 minutes; tow speed was 3.8 knots and the dredge was fished using a 3:1 wire out to depth scope. A recording inclinometer was mounted on the dredge to collect bottom contact time data. Tow distance was recorded using differential GPS.

The entire catch was sorted at each standard station into biological and trash components. Live whole and clapper shells of both sea and Iceland scallops were measured in five-millimeter length intervals. Selected fish species caught incidentally in the dredge were measured to the nearest centimeter. Weights and total numbers were recorded for all other fish species, cancer crabs, and starfish. Trash portions were estimated by volume and discarded. Data was recorded on dredge logs as well as in the Fisheries Scientific Computer System (FSCS).

During Part I, a dredge mounted underwater camera system was deployed on 8 dredge hauls to validate the operation of the inclinometer. This is an on-going project to validate the interpretation of the dredge angle to determine how the gear is fishing and for what length of time. There were a total of 29 paired rock chain dredge hauls conducted. Twenty-five of them were considered part of the on-going project to develop a calibration factor in the Great South Channel. The other 4 tow pairs were stations outside the Great South Channel where the standard dredge captured rocks and were repeated using the rock chain dredge. These pairs will be used in the future to possibly expand the use of the rock chain dredge during the standard scallop survey.

Surface temperatures were measured using the hull-mounted temperature sensor at a depth of three meters and logged by the Scientific Computer System (SCS) at all stations. Temperature and conductivity profiles were made at approximately every third station using a conductivity, temperature, and depth instrument (CTD). A bottom salinity sample was obtained twice a day to calibrate the CTD. Water samples were also taken for fluorometer calibrations.

GMT time was used throughout the survey.

## RESULTS

There were a total of 596 stations occupied during the cruise with 357 and 239 dredge hauls made on Parts I and II respectively. There were a total of 26 occurrences of dredge flips (stations were retowed in most cases). Bottom temperatures were collected at 136 stations using the CTD system. Bottom water samples for CTD calibration were taken at 42 stations.

During Part I, a dredge mounted underwater camera system was deployed on 8 dredge hauls to validate the operation of the inclinometer. This is an ongoing project to validate the interpretation of the dredge angle to determine whether the gear is fishing or not and for what length of time. There were a total of 29 paired rock chain dredge hauls conducted. Twenty-five of them were considered part of the ongoing project to develop a calibration factor in the Great South Channel. The other 4 pairs were stations outside the Great South Channel where the standard dredge captured rocks and were repeated with the rock chain dredge. These pairs will

be used in the future to expand the use of the rock chain dredge during the standard scallop survey.

Table 1 lists the major samples collected for various studies.

#### DISPOSITION OF DATA

Catch data and hydrographic data will be analyzed at the NEFSC Laboratory in Woods Hole, Massachusetts. The various collections were forwarded to researchers listed in Table 1. Resulting data will be audited, edited, and archived in the NEFSC Fisheries Scientific Computer System (FSCS) database.

#### SCIENTIFIC PERSONNEL

##### National Marine Fisheries Service, NEFSC , Woods Hole, MA

Lawrence Brady, Chief Scientist<sup>1</sup>,  
Participant<sup>2</sup>

Victor Nordahl, Chief Scientist<sup>2</sup>

Robert Alexander<sup>1</sup>  
Jonathan Duquette<sup>1</sup>

Devorah Hart<sup>2</sup>  
Kevin McIntosh<sup>1</sup>

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Stacy Rowe<sup>1</sup>  
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##### US Coast Guard Academy, New London, CT

Sara Booth<sup>1,2</sup>

##### Northeast University, Boston, MA

Kelly Crawford<sup>2</sup>

##### NMFS, Museum of Natural History, Washington, DC

Alicia Long<sup>1,2</sup>

##### Contractors

James Kendall<sup>2</sup>

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New Bedford, MA

Ashford, CT

Canton, MA

Jakarta, Indonesia

##### Volunteers

Andrew Applegate<sup>2</sup>

Georgetown, MA

Paul Chatelain<sup>1</sup>  
Erin Collings<sup>1</sup>  
Jeffrey Keene II<sup>1</sup>  
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Jay Raines<sup>1</sup>  
Daniel Vanravensway<sup>2</sup>

West Dennis, MA  
Wakefield, MA  
Brandon, FL  
Los Angeles, CA  
Mattapoisett, MA  
Woodbridge, VA  
Honolulu, HI

<sup>1</sup>6-21 July

<sup>2</sup>26 July-5 August

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Table 1. Special samples obtained for various investigators on FRV ALBATROSS IV Cruise 04-06, Sea Scallop Survey, during 6 July-5 August, 2004.

Investigator and Affiliation	Samples Saved	Approximate Number
John Burnett, NMFS, NEFSC, Woods Hole, MA	Goosefish vertebrae	68 indiv.
Michael Fine, Virginia Commonwealth Univ., Richmond, VA	Fawn cusk-eel	9 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Various species	13 indiv.
Devorah Hart, NMFS, NEFSC, Woods Hole, MA	Scallop shells/meat weights	2,233 samples
	Preserved scallops	93 samples
Jason Link, NMFS, NEFSC, Woods Hole, MA	Goosefish stomachs	34 samples
K.B. McArdle, NMFS, NEFSC, Woods Hole, MA	Various species	219 indiv.
Nancy McHugh, NMFS, NEFSC, Woods Hole, MA	Various species	19 indiv.
Thomas Munroe, NMFS, Systematics Lab, Washington, DC	Various species	62 indiv.
Paul Nitschke, NMFS, NEFSC, Woods Hole, MA	Cunner	6 indiv.
Avis Sosa, International School, Jakarta, Indonesia	Shellfish reference collection	59 samples
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Misc. skate vertebrae	189 indiv.
	Exam/gonad meas/stomach	197 indiv.
Richard Taylor, Gloucester, MA	Sea scallops	790 indiv.